

NEW PHILIPPINE GALL MIDGES

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This paper is supplemental to an earlier one;¹ it not only describes and records the food habits of a number of Philippine gall midges, but also establishes the occurrence in the eastern tropics of *Ctenodactylomyia* Felt or a closely related genus, previously known only in subtropical America. This was to be expected, since studies on distribution show that certain subtropical genera have a range which would suggest their probable occurrence in all warmer climates where food plants permit their existence. This record is analogous to the discovery of species of the genus *Aplonyx* in such widely separated parts of the world as the Mediterranean region and the vicinity of Salt Lake, Utah—localities apparently agreeable to the host plants as well as to the insects.

This collection, like the preceding, was received through the courtesy of Prof. Charles S. Banks, chief of the department of entomology of the College of Agriculture, University of the Philippines, who collected some of the species, as detailed below. Mr. L. B. Uichanco reared a number of species from various galls; the galls, I understand, are to be described in detail in another paper.

Ctenodactylomyia antidesmæ sp. nov.

Female.—Length, 1.5 millimeters. Antennæ extending to the base of the abdomen, sparsely haired, reddish brown, the basal segments reddish orange, probably of 14 segments, the fifth cylindrical, its length two and one-half times its diameter. Palpi presumably triarticulate, first segment irregularly and broadly oval, second a little longer, slenderer, third three times as long as its width and somewhat dilated. Eyes black, holoptic. Mesonotum pale yellowish, sparsely clothed with coarse setæ. Scutellum translucent yellowish. Postscutellum yellowish orange. Abdomen reddish orange, distal segments rather thickly clothed

¹ Felt, E. P., New Philippine gall midges, with a key to the Itonididæ, *Philip. Journ. Sci.* § D 13 (1918) 281.

with coarse, dark setæ or scales. Wings hyaline, their length about twice their width, third vein uniting with margin well before apex, fifth vein obsolescent distad and joining margin at distal fourth, its branch near basal third. Membrane rather thickly clothed with dark hairs. Halteres whitish transparent basad, fuscous apicad. Coxæ and femora basad yellowish orange. Femora distad and tibiæ dark straw. Tarsi mostly fuscous, the anterior pair with narrow, indistinct, yellowish annulations at articulations. Claws quadridentate, there being at least three minor stout teeth nearly as long as, though more slender than, the main claw. Pulvilli about one-half length of claws. Ovipositor about one-half length of abdomen. The terminal lobes five times as long as wide and sparsely setose.

Type.—Cecid. a2881, New York State collection.

LUZON, Laguna Province, Mount Maquiling, October 2, 1917, College of Agriculture accession No. 18157 (*L. B. Uichanco*).

The single female, described above, was reared from leaf galls on *Antidesma leptocladum* Tul. The species is tentatively placed in this genus, though the wings are decidedly broader than in the type species, and there is a possibility that it should be referred to a new genus. Such action is deferred until both sexes can be secured.

• *Lasioptera falcata* sp. nov.

Female.—Length, 1.5 millimeters. Antennæ extending to near base of abdomen, sparsely haired, dark brown, of 24 segments, the fifth as long as its diameter. Terminal segment slightly produced and narrowly oval. First segment of palpi short, irregular; second about three times as long as its diameter; third nearly one-half longer, slenderer; fourth a little longer and slenderer than third. Mesonotum reddish brown, apparently denuded. Scutellum reddish orange. Postscutellum dark brown. Abdomen mostly dark brown, first segment margined caudad with a narrow white line, the others though badly rubbed show submedian whitish spots; terminal segment yellowish. Wings hyaline, third vein uniting with costa near distal third. Halteres yellowish. Coxæ yellowish orange. Legs mostly dark brown. Ovipositor nearly as long as body, terminal lobe about four times as long as wide, slightly curved, sparsely setose, and with an oval group of heavy, stout, hastate spines basad and a group of rather long, moderately slender, chitinous hooks.

Type.—Cecid. a2887, New York State collection.

LUZON, Laguna Province, Los Baños, January 3, 1917, College of Agriculture accession No. 18183 (*Uichanco*).

The single female, reared from a stem gall on a wild cucurbit, is presumably undescribed, and there is little question that it is the producer of the gall. The insect is remarkable because of the unusually long, somewhat falcate, terminal lobes of the ovipositor.

Asphondylia grewia sp. nov.

Male.—Length, 1.5 millimeters. Antennæ probably nearly as long as body, sparsely haired, basal portion, at least, dark brown, presumably of 14 segments, fifth with a length four times its diameter and with moderately high circumfila. Palpi probably triarticulate. Mesonotum dark reddish brown. Scutellum and postscutellum yellowish brown. Abdomen dark brown, sparsely haired. Wings unusually broad and rather thickly clothed with fuscous hairs. Third vein unites with margin near apex, fifth at distal third, its branch at basal fourth; fork unusually long. Halteres fuscous yellowish. Legs dark brown. Claws long, moderately stout, pulvilli as long as claws. Genitalia: Basal clasp segment short, stout, and bidentate, with a distinct rudimentary tooth near the bottom of the excavation; dorsal plate divided, the lobes irregularly triangular, lobes of ventral plate rounded.

Type.—Cecid. a2880, New York State collection.

LUZON, Laguna Province, Mount Maquiling, September 23, 1917, College of Agriculture accession No. 18137 (*Uichanco*).

The one male described above was reared from a leaf gall on *Grewia stylocarpa* Warb. The species is remarkable in this genus because of the unusually broad wings, these having a length nearly one-half greater than the diameter. The specimen was badly broken and rumped.

Contarinia saltata sp. nov.

Male.—Length, 1.25 millimeters. Antennæ one-fourth longer than body, thickly haired, reddish brown, of 14 segments, fifth having stems with a length equal to, and one-half greater than, their diameters, respectively. Basal enlargement subglobose, distal enlargement somewhat produced, both with moderately long circumfila; basal portion of terminal segment with the stem short, distal enlargement irregularly fusiform and tapering slightly to a very broad, broadly rounded apex. Length of first segment of palpi about two and one-half times its diameter; second a little longer, slenderer; third a little longer than second; fourth as long as third and somewhat dilated apicad. Mesonotum dark reddish brown. Scutellum reddish orange. Postscutellum

dark brown. Abdomen reddish brown. Wings hyaline, moderately narrow, third vein uniting with margin at apex. Halteres yellowish basad, reddish apicad. Coxæ and legs mostly reddish brown. Claws long, slender, strongly curved apicad, pulvilli as long as claws. Genitalia: Basal clasp segment very short and stout; terminal clasp segment moderately long and stout, dorsal plate short, broad, narrowly incised, lobes obliquely truncate, lateral angles broadly rounded; ventral plate deeply and triangularly emarginate, lobes somewhat divergent and tapering to a narrowly rounded vertex; style moderately long, tapering strongly, narrowly rounded apicad.

Type.—Cecid. a2884, New York State collection.

LUZON, Laguna Province, Los Baños, February 6, 1918, College of Agriculture accession No. 18180 (*Uichanco*).

A series of specimens was taken from a spider's web on a leaf of *Andropogon sorghum* Linn. It is possible that this insect lives upon *Andropogon*, though it is very different from *Contarinia sorghicola* Coq., which is well known in America. It is described here because it is believed that the peculiar characters will make the recognition of this species easy and, therefore, no confusion need arise from a description not based in part upon a food-plant record.

Bremia macrofilum sp. nov.

Male.—Length, 1 millimeter. Antennæ one-half longer than body, thickly haired, dark brown, of 14 segments, fifth with stems having a length one and one-half and two and one-half times their diameters, respectively. Basal enlargement subglobose, distal enlargement oval, its length one and three-fourths times its diameter. Dorsal loops on basal circumfilum produced nearly to distal enlargement and dorsal loops of distal circumfilum extending to apex of basal enlargement of next segment. Terminal segment greatly produced, basal portion of stem with a length about five times its diameter, distal enlargement pyriform, its basal third rather strongly constricted. Appendage long, irregular, and slightly fusiform. First segment of palpi with a length about three times its diameter; second a little longer, stouter; third as long as second; fourth one-half longer than third and slenderer. Mesonotum dull dark brown. Scutellum yellowish brown. Postscutellum dark brown. Abdomen dark brown, almost black, sparsely haired; genitalia yellowish. Wings hyaline. Halteres yellowish basad, reddish apicad. Coxæ dark brown. Legs mostly reddish brown. Claws moderately long, slender, strongly curved, the anterior ones unidentate, pulvilli

rudimentary. Genitalia: Basal clasp segment moderately long, stout; terminal clasp segment long, slender, swollen basad; dorsal plate deeply and triangularly emarginate, the lobe sparsely setose, tapering to a narrowly rounded apex; ventral plate apparently very long and slender and with a somewhat curved, quadrate, obliquely truncate, lateral process at the basal third, the length of which is approximately one-third that of the entire organ. The distal portion of the ventral plate beyond this process is slender and a little longer than the basal part; harpes chitinized, indistinct; style rather short, stout, obtuse apicad.

Female.—Length, 1.5 millimeters. Antennæ a little shorter than body, sparsely haired, dark brown, of 14 segments, fifth with a stem one-fourth the length of the cylindrical basal enlargement. The latter is two and one-half times as long as its diameter. It bears a sparse subbasal whorl of long, stout setæ and a median band of shorter, slender, curved setæ. Circumfila unusually heavy, terminal segment produced, length of basal portion four times its diameter, appendage knoblike. Mesonotum dark brown, submedian lines sparsely haired. Scutellum yellowish fuscous. Postscutellum dark brown. Abdomen mostly dark brown, basal segments with a dark orange hue. Legs mostly dark brown, fourth tarsal segment of anterior legs and distal tarsal segment of middle pair of legs white in certain lights. Ovipositor short, the lobes roundly triangular and sparsely setose, otherwise as in the male.

Type.—Cecid. a2888, New York State collection.

MINDANAO, Lanao District, Kolambugan, June 10, 1914, College of Agriculture accession No. 18184 (*C. S. Banks*).

The midges described above were accompanied by the statement that they were caught on a spider's web. They were dancing on the web, by the thousand, on a bright sunshiny afternoon. This peculiar species has unusually heavy circumfila in the female, and the male genitalia present striking characteristics.

Arthrocnodax copræ sp. nov.

Male.—Length, 0.75 millimeter. Antennæ a little longer than body, thickly haired, reddish brown, of 14 segments, fifth having stems with a length one-half and one and one-half times their diameters, respectively. Basal enlargement subglobose, distal broadly ovoid, both with moderately long and unusually heavy circumfila; basal enlargement of terminal segment subglobose, stem relatively short, distal enlargement broadly cylindrical, apex almost truncate. First segment of palpi short, irregular; second with a length three times its width; third a little shorter

than second, more dilated; fourth one-half longer than second. Mesonotum shining dark brown. Scutellum and postscutellum dark reddish brown. Abdomen yellowish fuscous. Wings hyaline, third vein uniting with costa well before apex; fifth obsolete distad, joining posterior margin at distal fourth, its branch at basal third. Halteres translucent whitish basad, fuscous apicad. Coxæ dark brown. Legs mostly yellowish brown. Claws rather long, evenly curved, slender, pulvilli rudimentary. Genitalia: Basal clasp segment moderately long, stout; terminal clasp segment rather long, swollen basad, dorsal plate deeply and triangularly emarginate, lobes triangular and sparsely setose; ventral plate moderately long, broad, broadly rounded apicad; style long, stout, and tapering to a narrowly rounded apex.

Female.—Length, 0.75 millimeter. Antennæ a little shorter than body, rather thickly haired, yellowish brown, of 14 segments, fifth with a stem about one-half the length of cylindrical basal enlargement, the latter about three times as long as its diameter. First segment of palpi short, irregular; second somewhat dilated, its length over twice its diameter; third one-half longer than second, slenderer; fourth a little longer than third and more dilated. Mesonotum dark reddish brown. Scutellum yellowish, darker basad. Postscutellum yellowish. Abdomen deep red. Halteres yellowish basad, fuscous apicad. Legs mostly yellowish fuscous, distal tarsal segments somewhat darker. Ovipositor short, lobes with a length two and one-half times width and sparsely setose.

Type.—Cecid. a2883, New York State collection.

The coloration in this species is evidently variable, another male having a shining reddish brown mesonotum, yellowish scutellum and postscutellum, and dark reddish abdomen. A second female had a shining, very dark brown, almost black mesonotum.

LUZON, Laguna Province, Los Baños, December 6, 1917, College of Agriculture accession No. 18173 (*C. S. Banks*).

A series of midges was reared from copra (dried coconut meat) kept in the laboratory for breeding *Necrobia rufipes* de Geer. The glass vessel had not been opened for a month. The characteristic short stems of the flagellate antennal segments and the heavy circumfila lead me to place this species here, though the poorly developed pulvilli would indicate an affinity with *Silvestrina* Kieff. or *Planodiplosis* Kieff., the latter known only by the female. It is probable that the larvæ are scavengers, as is the case with *A. ahiphila* Felt and some other American species.

Itonida paederiae sp. nov.

Male.—Length, 1 millimeter. Antennæ probably twice the length of body, thickly haired, pale yellowish, probably with 14 segments, fifth having basal portion of stem with a length one-fourth greater than its diameter, distal portion three times as long as its diameter; basal enlargement subglobose, terminal enlargement subcylindrical, somewhat expanded distad and with a length one and three-fourths times its diameter, circumfila moderately long, terminal segment missing. First segment of palpi moderately long, irregular, length of second three times its diameter; third one-half longer and slenderer than second; fourth as long as third and somewhat dilated. Scutellum reddish brown. Postscutellum and abdomen mostly yellowish brown, abdomen thickly clothed with long hairs. Wings hyaline, membrane rather thickly haired, third vein uniting with costa just beyond apex, fifth obsolescent at the distal third, its branch at the basal third. Halteres translucent yellowish. Legs mostly dark straw. Claws moderately long, rather strongly curved, simple, pulvilli about three-fourths length of claws. Genitalia: Basal clasp segment rather long, slender; terminal clasp segment moderately long, stout and curved; dorsal plate moderately long, broad, deeply and triangularly emarginate, interior margin with a distinct setose process at basal third; lobes triangular and sparsely setose; ventral plate long, broad, deeply and roundly emarginate, lobes slender and setose apicad; style long, moderately stout and broadly rounded apicad.

Female.—Length, 1.5 millimeters. Antennæ probably nearly as long as body, rather thickly long haired, mostly reddish brown, of 14 (?) segments, fifth with a stem nearly three-fourths length of cylindrical basal enlargement. The latter is about three times as long as its diameter. First segment of palpi short, irregular; second narrowly ovoid, with a length three times its diameter; third one-half longer than second; fourth a little longer than third. Mesonotum yellowish brown, sparsely long haired. Scutellum brownish yellow. Postscutellum and abdomen reddish brown, the latter sparsely haired. Halteres yellowish basad, fuscous apicad. Coxæ yellowish brown. Legs mostly dark brown. Ovipositor short, terminal lobes sparsely setose, their length about three times their width. Ventral lobe much shorter and broadly rounded apicad.

Type.—Cecid. a2882, New York State collection.

LUZON, Laguna Province, Los Baños, October 13, 1917, College of Agriculture accession No. 18165 (*Uichanco*).

The specimens were reared from leaf galls on *Paederia tomentosa* Blume.

Cecidomyia philippinensis sp. nov.

Female.—Length, 2 millimeters. Antennæ about one-half the length of body, rather sparsely haired, reddish brown, of 14 segments, fifth with a stem one-fourth the length of the cylindrical basal enlargement, which latter is about three and one-half times as long as its diameter; a rather sparse whorl of stout setæ basad and a somewhat thick band of slenderer setæ subapicad; basal portion of terminal segment with a length about two and one-half times its diameter, the distal portion long and digitate. Each palpus consisting of one narrowly ovoid segment. Eyes holoptic. Mesonotum dull reddish brown, submedian lines yellowish, thickly haired. Scutellum pale yellowish. Postscutellum brownish yellow. Abdomen mostly dark red, thickly haired. Wings hyaline, slender, the length being nearly three times the width, subcosta united to costa by a rather distinct chitinized area and ending near basal third. Third vein nearly straight and joining margin well beyond apex of wing, fifth vein uniting with posterior margin at distal fourth, its branch near basal half. Halteres yellowish basad, reddish apicad. Coxæ pale yellowish. Femora distad reddish brown, tibiæ and tarsi mostly pale straw. Claws wanting. Ovipositor short, terminal lobes rather broadly ovoid and somewhat thickly setose.

Type.—Cecid. a2889, New York State collection.

LUZON, Laguna Province, Mount Maquiling, September 3, 1917, College of Agriculture accession No. 18316 (*Uichanco*).

The one female described above was accompanied by the following statement: "It is doubtful whether this is the cause of the numerous galls on the leaves of this plant (*Spatholobus philippinensis* Merr.), as this insect was bred out of a narrow thistle-shaped case, attached to the leaf and not from the galls." Despite the above, there is a fair probability that this is the gall producer; and, as there is a definite food-plant record, I have described the species from a somewhat mutilated specimen. Since the characters are sufficiently marked, there should be comparatively little difficulty in establishing the identity of the insect later.